REMARKS

Applicants appreciate the thorough examination of the present application as reflected in the Final Official Action mailed November 17, 2004 (hereinafter "Final Action") and the withdrawal of the rejections based on Section 112.

The IDS

The Official Action indicates that copies of the materials identified in Applicants' Supplemental Information Disclosure Statement (IDS) filed July 1, 2004, were not provided and were required. Final Action, p. 2. Applicants note that the materials submitted in the Supplemental IDS included materials from the parent application and its parent application. Applicants noted this in their response and in the cover sheet of the IDS. As the benefit of this application is claimed under 35 U.S.C. §120, no copies need to be furnished in accordance with 37 C.F.R. §1.98(d). However, for the Examiner's convenience, Applicants have included herewith copies of the cited references and a copy of the PTO-1449 form originally submitted in July, 2004. Applicants submit that no fee is required as the IDS was properly submitted without copies pursuant to 37 C.F.R. § 1.98(d) as copies were provided in the parent applications. Applicants request that the PTO-1449 form be initialed indicating consideration of these materials and the initialed form returned with any subsequent communication.

Applicants also wish to bring to the attention of the Examiner a Supplemental Information Disclosure Statement that was filed October 21, 2004. Applicants request that the PTO-1449 form be initialed indicating consideration of these materials and the initialed form returned with any subsequent communication.

The Anticipation Rejections

Claims 1-35 stand rejected as anticipated by United States Patent No. 6,631,122 to Arunachalam et al (hereinafter "Arunachalam"). Claims 1, 23, 27 and 32-35 are independent claims.

Claims 1-22

In rejecting Claim 1, the Final Action cites to col. 4, line 52 to col. 5, line 35, col. 6, lines 1-3 and 13-4, col. 8, lines 29-53 and col. 11, lines 8-11 of Arunachalam as disclosing "providing

transaction service level information for a data transmission transaction to a communication process executing on a data processing system from an application requesting the data transmission transaction, wherein the transaction service level information is provided separate from data for the data transmission transaction." Final Action, p. 3. The Final Action also cites to col. 6, lines 1-3 and col. 7 lines 60-63 of Arunachalam as disclosing "determining a quality of service level associated with the data transmission transaction based on the transaction service level information received by the communication process from the application." Final Action, p. 3. Applicants addressed many of these portions in Applicants' previous response. In the interest of brevity, Applicants will not repeat these arguments but incorporate them by reference in the present response. Instead, Applicants will primarily address the newly cited portions of Arunachalam and the arguments presented in paragraphs 17 and 18 of the Final Action. Applicants submit that the cited portions of Arunachalam do not disclose or suggest each of the recitations of Claim 1 for at least the reasons discussed below.

Claim 1 recites:

> 1. (Currently Amended) A method for providing transactional quality of service, the method comprising the steps of:
>
> **providing transaction service level information for a data transmission transaction to a communication process executing on a data processing system from an application executing on the data processing system requesting the data transmission transaction, wherein the transaction service level information is provided separate from data for the data transmission transaction**; and
>
> determining a quality of service level associated with the data transmission transaction based on the transaction service level information **received by the communication process from the application**.

Emphasis added. Thus, as recited in Claim 1, an application executing on the same data processing system as the communication process provides transaction service level information separate from data for the data transmission transaction and this transaction service level information received from the application is used to determine the quality of service for the data transmission transaction. Applicants submit that at least the highlighted portions of Claim 1 are not disclosed or suggested by the cited portions of Arunachalam.

Turning to the specifics of the rejection, in addition to the sections addressed in Applicants' previous response, the Final Action has cited to col. 8, lines 29-53 of Arunachalam as disclosing that the application provides transaction service level information to a

communication process separate from the data for transmission and col. 4, lines 34-45 of Arunachalam as disclosing that the application and the communication process are executed on the same data processing system. Final Action, p. 6. Applicants respectfully disagree.

Column 8, lines 29-53 of Arunachalam states:

> Wireless QoS agent 801 is a key component of the QoS framework which allows for service negotiation between QoS agent and the end user. This is achieved by special messages through the signalling channel after the user is authenticated by the system. It is contemplated that the third generation wireless network will have its own set of service classes. The transit network will also have its own set of service classes. For example, an IP Diff-serv transit network may have three classes such as expedited forwarding (EF), assured forwarding (AF) and default best effort. In order to provide service guarantee for incoming or outgoing traffic, there has to be some agreement (generally referred to as the Service Level Agreement (SLA)) about the mapping between the service classes of the two networks. For each transit network that the third generation wireless network connects to, wireless QoS agent 801 in FIG. 8 maintains a mapping table (not shown) between the service classes of the two networks.
>
> In one embodiment, QoS agent is capable of exchanging service level agreements (SLA) with the peer QoS agent in the transit network (such as the Bandwidth Broker proposed by the Diff-serv WG). The SLA will determine the QoS mapping to a specific class of service (CoS) and the flow conditioning requirement as the traffic traverses one network boundary to another.

While this portion of Arunachalam does recite that the QoS agent can exchange service level agreements with peer QoS agents, there does not appear to be any discussion of basing the service level agreements on information obtained from an application executing on the same data processing system as the QoS agent.

The Final Action asserts that col. 8, lines 29-53 discloses the recitations of Claim 1 by teaching "negotiating and mapping services classed based on Service Level Agreement by wireless Qos agent." Final Action, p. 6. However, the cited portion of Arunachalam describes negotiation SLAs for two different networks. This is consistent with what appears to be the function of the wireless QoS agent of Arunachalam of extending the wired IP network to a wireless network. See Arunachalam, col. 3, line 51 to col. 4, line 59. Merely because Arunachalam describes negotiation and mapping of service classes **between networks** does not disclose or suggest the recitations of Claim 1.

The Final Action also cites to col. 4, lines 34-45 of Arunachalam as disclosing that the application and the communication process execute on the same data processing system. Final Action, p. 6. Column 4, lines 34-45 of Arunachalam state:

> According to the preferred embodiment of the present invention, the architecture also defines a QoS agent within the wireless access network which is a slave device to the IP QoS agent. The agent configures and enforces policies within the network devices's flow handling mechanism under the QoS agent's instructions. The primary function of the agent is enforcing flow classification, marking, mapping & treatment policies. FIG. 3 illustrates the various functional processes of the QoS agent. Wireless Qos agent 301 is interlinked with IP Qos manager 205 which as described in FIG. 2 is interconnected with other peer IP QoS agents via some busses 202 and endsystems 207. For illustration

This portion of Arunachalam says nothing about the QoS agent and an application that provides service level information for a data transmission transaction requested by the application executing on the same data processing system. In fact, Figure 3 of Arunachalam, which is referenced in the cited portion, clearly illustrates the wireless QoS agent 301 as located at a network device, not at an end system 207. In fact, neither the QoS Agent nor the QoS manager are illustrated as executing on the end system 207.

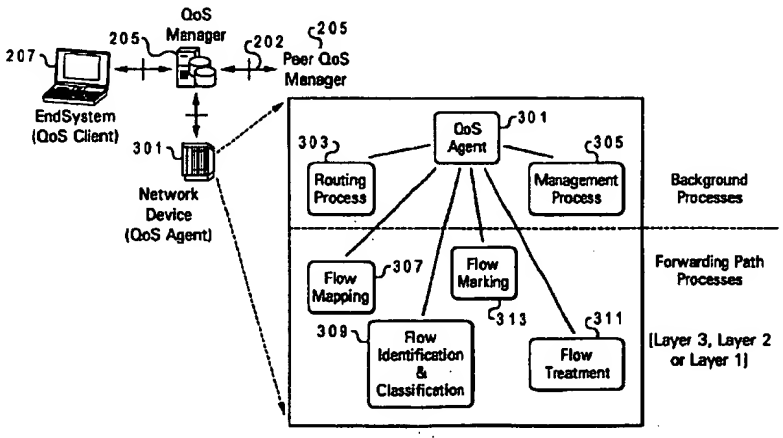


Fig. 3

Furthermore, Arunachalam explicitly states that "[t]he preferred embodiment contemplates that the wireless QoS agent will be physically located within the BSC." Arunachalam, col. 12, lines 59-60. While the term BSC is never expressly defined in Arunachalam, it appears that the BSC is not the end user terminal in light of the discussion at col. 6, line 66 through col. 7, line 12. Applicants submit that, in the context of Arunachalam, the term BSC may refer to a Base Station Controller. Thus, the cited portions of Arunachalam do not appear to disclose or suggest that an application provides service level information to a communication process executing on the same data processing system as the application and that the service level information from the application requesting the data transmission transaction be used to establish the QoS for the data transmission transaction as recited in Claim 1.

The Final Action also relies on newly cited col. 4, line 52 to col. 5, line 35 of Arunachalam in rejecting Claims 1-2 and 9-13. Column 4, line 52 to col. 5, line 35 of Arunachalam states:

> 209. Wireless QoS agent 301 when implemented provides background processes and forward path processes. Forward path processes occur on layer, 1, layer 2 or layer 3 of the signalling protocol. Background processes include routing process 303, and management process 305. Forward path processes include flow mapping 307, flow marking 313, flow identification and classification 309, and flow treatment 311.
>
> In accordance with the teachings of the present invention, the QoS Manager/Agent provides additional guarantee to the QoS parameters, namely, delay, jitter, bandwidth and reliability, pertaining to user applications. The complexity of wireless link management centers around providing the flexibility of selecting various QoS provisioning techniques for next generation wireless systems and the future broadband wireless systems. A QoS agent is advantageous in guiding the Radio Resource Manager (RRM) in allocating radio channels (meeting particular coding, interleaving requirements) and software blocks for link layer Automatic Request for Retransmission (ARQ), and power control algorithms, etc. Also, the QoS agent will be able to help some of these algorithms to perform link adaptation depending on the current quality of the radio link and service applications, by fine-tuning certain changeable parameters (e.g., power control step size, number of retransmissions in ARQ etc). The traditional RRM performs dynamic channel (re)allocation when instructed by the QoS agent, for example, to move a user from a 1/2 code-rate channel to 1/4 code-rate, during a period of frequent error burst. All the above functions will be governed by three types of radio resource usage policies by the wireless QoS Agent: (1) SLA policies, (2) tariff policies, and (3) fairness policies.

> The base station subsystem of a third generation radio system provides these different types of radio channels (each providing different levels of QoS) and switches traffic to these channels. FIG. 4 depicts an example of a wireless QoS provisioning. The example shown in FIG. 4 envisions QoS provisioning utilizing various types of radio channels in the base station subsystem of the next generation wireless networks. Three layers are defined illustrating wireless service types 403, radio link layer 411, and wireless physical layer 415. Various classes of wireless services with specific QoS requirements are allocated radio link layer 411 resources (e.g., RPL 410) and radio channels RRM 405, to meet their service requirements, under the control of the wireless QoS agent 401. Different coder types are utilized based on the wireless service types 403. These include coder 1407 and coder 2409 and their corresponding interleaver 1408 and interleaver 2410. Interleaver 3413 is also depicted and utilized when best effort service type is desired. Additional versions of this design may also be implemented.

This portion of Arunachalam does not appear to say anything about an application or a communication process executing on the same data processing system or an application requesting a data transmission transaction providing transaction service level information separate from data to the communication process as recited in Claim 1.

In light of the above discussion, Applicants submit that the recitations of Claim 1 are neither disclosed nor suggested by the cited portions of Arunachalam. In particular, the cited portions of Arunachalam do not appear to describe an application and a communication process executing on a data processing system where the application specifies service level information to the communication process separate from the data for a communication transaction. In particular, it does not appear that the cited portions of Arunachalam are directed to the interactions between an application and a communications process as recited in Claim 1, but appear to be directed to the determination of the QoS of packets as they are transmitted through the network. Accordingly, Applicants submit that Claim 1 is patentable over the cited portions of Arunachalam for at least these reasons. Applicants submit that each of the dependent Claims 2-22 are patentable at least as depending from a patentable base claim.

Claims 23-26

Claim 23 is rejected based on the portions of Arunachalam cited in the previous Official Action. Accordingly, Applicants submit that Claim 23, and the claims that depend from Claim

23, are not disclosed by the cited portions of Arunachalam for at least the reasons discussed in Applicants' previous response. To the extent that the Final Action asserts that the rejection is based on the portions of Arunachalam discussed above with reference to Claim 1, Applicants submit that Claim 23 is patentable over these portions of Arunachalam for applicable ones of the reasons discussed above.

The Final Action also cited to col. 5, lines 40-67 in responding to Applicants' previous arguments that the cited portions of Arunachalam do not appear to disclose an API that provides data and quality of service information associated with the data to a communications process that, in turn, establishes a quality of service level without reference to the contents of the data to be transmitted as recited in Claim 23. Final Action, p. 6. Column 5, lines 40-67 of Arunachalam states:

> provide a glimpse of its internal structure. A service requester interface 505 consisting of flow mapping 506a and parameter computation 506b blocks receives higher layer QOS requests 501. It provides feedback to higher layers 503, but more importantly, a call admission controller 507 makes a call admission decision based on the parameters computation (resource estimation). If admitted, the request goes to a Dynamic Resource Controller (DRC) and Radio Link Adaptation block (RLA) 511. DRC and RLA also receive an output from QoS monitor and flow control block 515 which contains parameter setting 516a, system QoS monitor 516b, radio channel QoS monitor 516c, and low layer flow control 516d. An interconnection is provided to RRM radio link resource modules 513 via control interfaces 514.
>
> A possible way to implement service mapping and dynamic QoS adaptation is over-the-air interface between the mobile and the base station. However, to achieve certain grade of service, QoS requirements should be met over the entire network between the source and the destination. This requires QoS negotiation between the third generation wireless network and the end user and possibly between the third generation network and the wireline network, as packets traverse through the network. The framework of the present invention allows for (a) negotiation of Service Level Agreement (SLA) between the wireless network and the wireline network, and (b) dynamic re-allocation of resources when there is a QoS degradation (as decided by the Frame Error Rate (FER) or some other criteria).

This portion of Arunachalam appears to relate to Figure 5 of Arunachalam which is an internal functional diagram of a QoS agent. See Arunachalam, col. 3, lines 30-32. This interface is illustrated as to "higher layers," which are described as the IP layer in Figure 5. Applicants submit that the term "application program interface" is not a generic reference to an interface but

refers to an interface used by application programs. There is no indication in the cited portions of Arunachalam that the service requestor interface is used by application programs to access the QoS agent for providing data and quality of service information as recited in Claim 23. Accordingly, Applicants submit that the service requestor interface does not disclose an "application program interface" as recited in Claim 23. Accordingly, Applicants submit that Claim 23 is not anticipated by the cited portions of Arunachalam for at least these reasons. Applicants submit that each of the dependent Claims 24-26 are patentable at least as depending from a patentable base claim.

Claims 27-31

The Official Action rejects Claim 27 based on the same portions of Arunachalam cited against Claim 1 and reproduced above. Final Action, p. 5. However, Claim 27 recites:

> 27. (Previously Presented) A system for establishing a quality of service level for transmitted data, comprising:
> a communications process circuit comprising:
> a send message application program interface configured to receive data to be transmitted and quality of service information associated with the data to be transmitted;
> a policy service module configured to determine a quality of service level based on the quality of service information; and
> a transmit/receive process configured to transmit the received data utilizing the determined quality of service level.

Applicants submit that the cited portions of Arunachalam do not disclose or suggest the specific configuration of the communication process circuit recited in Claim 27.

In responding to Applicants' previous arguments, the Final Action cites to col. 5, lines 17-35 of Arunachalam. Column 5, lines 17-35 of Arunachalam states:

> The base station subsystem of a third generation radio system provides these different types of radio channels (each providing different levels of QoS) and switches traffic to these channels. FIG. 4 depicts an example of a wireless QoS provisioning. The example shown in FIG. 4 envisions QoS provisioning utilizing various types of radio channels in the base station subsystem of the next generation wireless networks. Three layers are defined illustrating wireless service types 403, radio link layer 411, and wireless physical layer 415. Various classes of wireless services with specific QoS requirements are allocated radio link layer 411 resources (e.g., RPL 410) and radio channels RRM 405, to meet their service requirements, under the control of the wireless

> QoS agent 401. Different coder types are utilized based on the wireless service types 403. These include coder 1407 and coder 2409 and their corresponding interleaver 1408 and interleaver 2410. Interleaver 3413 is also depicted and utilized when best effort service type is desired. Additional versions of this design may also be implemented.

This portion of Arunachalam appears to describe a base station subsystem for a third generation radio system. The cited portions of Arunachalam do not even mention a send message application program interface as recited in Claim 27. As such, Applicants submit that Claim 27 is not anticipated by the cited portions of Arunachalam for at least these reasons. Applicants submit that each of the dependent Claims 28-31 are patentable at least as depending from a patentable base claim.

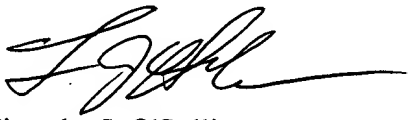
Claims 32-35

Applicants submit that Claims 32-35 are patentable over the cited portions of Arunachalam for reasons analogous to those discussed above with reference to Claims 1 and 23.

Conclusion

In light of the above discussion, Applicants submit that the present application is in condition for allowance, which action is respectfully requested. If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (919) 854-1400.

Respectfully submitted,



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